

REMARKS

Claims 17 - 29 are pending in the instant patent application. Applicants have taken note that the second occurrence of Claim 28 has been renumbered as Claim 29 by the Examiner.

CLAIM REJECTIONS

35 U.S.C. §103 Rejections

Claims 17 - 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. U.S. Patent No. 5,549,716 (hereinafter Takahashi) in view of Hokozaki et al. Japanese Patent Publication JP 57-167657 (hereinafter Hokozaki). Applicants have reviewed the cited references, and respectfully submit that the embodiments of the present invention as recited in Claims 17 - 20 are neither anticipated nor rendered obvious by Takahashi or Hokozaki, either alone or in combination

The Examiner is respectfully directed to independent Claim 17, which is directed to a universal packaging system for back-end manufacturing of ICs comprising: "a front-of-line portion for receiving a die-strip and for processing said die-strip using a first plurality of processes that function independently of the die size of said die strip..." Claims 18 - 20 depend from independent Claim 17 and recite further limitations to the claimed invention.

Applicants respectfully submit that Takahashi does not teach using a first plurality of processes that function independently of the die size of said die strip as claimed. Takahashi teaches a process for manufacturing integrated circuits using an automated multi-station apparatus. Takahashi also indicates that the process described may be suitable for “unmanning” and for “diversified small-quantity production such as production of an ASIC of the like,” see e.g., col. 2 lines 5 - 10 and 50 - 57 of Takahashi. Takahashi also teaches that a camera can be used to locate pads and position tools for wire bonding, see e.g., col. 4 line 65 - col. 5 line 55 of Takahashi.

An ASIC is an integrated circuit designed to perform a particular function. Undoubtedly, different batches of uniformly sized ASIC dies have need for wire bonding in different locations due to their different functionalities. Because of this, a camera based positioning means is likely helpful for reducing human interaction (referred to as unmanning) in this task that can vary from one small-quantity production run to another. However, nothing in the Takahashi reference teaches or suggests working with dies of varying sizes. In fact, the Takahashi reference is silent, and gives no indication that any part of the described manufacturing process, let alone the front-of-the-line portion, or even the wire bonding portion, is physically capable of, or configurable for, receiving a die-strip and for processing said die-strip using a first plurality of processes that function independently of the die size of said die strip, as claimed. Consequently,

the embodiments of the Applicants' invention set forth in Claim 17, and in Claims 18 - 20 which depend from Claim 17, are neither anticipated nor rendered obvious by Takahashi.

Applicants respectfully submit that Hokozaiki does not teach using a first plurality of processes that function independently of the die size of said die strip as claimed in the present invention. Hokozaiki seems to teach some category of process for scribing uniformly sized silicon wafers into various patterns, see e.g., the "purpose" section of the Hokozaiki abstract. However, Hokozaiki fails to cure the defects noted above with the Takahashi reference, and so far as Applicants can discern, Hokozaiki is silent with respect to using a first plurality of processes that function independently of the die size of said die strip, as claimed.

Applicants can find no motivation in the cited Hokozaiki reference for making the modification suggested by the Examiner, and invite the Examiner to identify such a motivation or suggestion within the text of the specification of Hokozaiki. In the event that Hokozaiki is maintained for rejecting the claims, Applicants request that the Examiner provide a complete translation of Hokozaiki so that its teachings can be fully understood and appreciated by both the Examiner and the Applicants.

Consequently, the embodiments of the Applicants' invention set forth in Claim 17 (and Claims 18 - 20 which depend from Claim 17) are neither anticipated nor rendered obvious by Takahashi or Hokozaiki, either alone or in

combination. Accordingly, the Applicants also respectfully submit that Claim 17 overcomes the rejection under 35 U.S.C. 103(a), and that Claims 18 - 20, which depend from Claim 17, also overcome the rejection under 35 U.S.C. 103(a) through dependency on an allowable base claim.

Claims 17, 21 - 23, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owens U.S. Patent No. 6,465,743, in view of Hokozaiki, in further view yet of Watanabe et al. U.S. Patent No. 4,674,670 (hereinafter Watanabe). Applicants have reviewed the cited references, and respectfully submit that the embodiments of the present invention as recited in Claims 17, 21 - 23, and 26 are neither anticipated nor rendered obvious by Owens, or Hokozaiki, or Watanabe, either alone or in combination.

The Examiner is respectfully directed to independent Claim 17, which is directed to a universal packaging system for back-end manufacturing of ICs comprising:

a front-of-line portion for receiving a die-strip and for processing said die-strip using a first plurality of processes that function independently of the die size of said die strip ... and a first part of an end-of-line portion for receiving said die-strip from said front-of line portion and for processing said die-strip through a second plurality of processes that function independently of said die size.

Claims 21 - 23 depend from independent Claim 17 and recite further limitations to the claimed invention. Independent Claim 26 contains similar limitations to Claim 17 and was rejected with the same rationale.

As the Examiner has noted, Owens is silent with respect to a front-of-line portion for receiving a die-strip and for processing said die-strip using a first plurality of processes that function independently of the die size of said die strip, and an end-of-line portion for processing said die-strip through a second plurality of processes that function independently of said die size, as claimed. Applicants further submit that Owens is silent with respect to an end-of-line portion for receiving said die-strip from said front-of-line portion, as is also claimed. Therefore, the claimed embodiments of the Applicants' invention as set forth in Claims 17 and 26 are neither anticipated nor rendered obvious by Owens.

Applicants respectfully submit that Hokozaiki does not cure the deficiencies of Owens that are noted above. Hokozaiki may teach some type of process for scribing uniformly sized silicon wafers into various patterns, see e.g., the "purpose" section of Hokozaiki's abstract. However, Hokozaiki fails to cure the defects noted above with the Owens reference. So far as Applicants can discern, Hokozaiki is silent with respect to using a first plurality of processes that function independently of the die size of said die strip, and an end-of-line portion for processing said die-strip through a second plurality of processes that function independently of said die size, as claimed. Additionally, so far as Applicants can

discern, Hokozaiki is also silent with respect to an end-of-line portion for receiving said die-strip from said front-of-line portion, as claimed in the present invention. Therefore, the claimed embodiments of the Applicants' invention as set forth in Claims 17 and 26 are neither anticipated nor rendered obvious by Owens or Hokozaiki, either alone or in combination.

Applicants respectfully submit that Watanabe does not cure the deficiencies of Owens and Hokozaiki that are noted above. Watanabe teaches a general purpose bonding apparatus adapted for use with work of different kinds; see e.g., col. 1 line 65 - col. 2 line 4, and col. 2 lines 55 - 59 of Watanabe. Like Hokozaiki, Watanabe is silent with respect to using a first plurality of processes that function independently of the die size of said die strip, and an end-of-line portion for processing said die-strip through a second plurality of processes that function independently of said die size, as claimed in the present invention. Bonding is only one process, not two separate pluralities of processes that function independently of die size, as claimed. Additionally, like Hokozaiki, Watanabe is also silent with respect to an end-of-line portion for receiving said die-strip from said front-of-line portion, as claimed.

The rejection indicates that one of ordinary skill in would have been motivated by Watanabe to build a general purpose assembly line around the bonding apparatus of Watanabe, with processes that function independently of die size. Applicants however can find no motivation or suggestion in Watanabe,

Owens, or Hokoziaki for doing this. Instead, Watanabe teaches away from doing this by teaching an embodiment where the general purpose bonder of Watanabe is integrated into a non-general purpose assembly line; see e.g., Figure 6 and col. 6 lines 22 - 32 of Watanabe. Therefore, Claims 17 and 26 are neither anticipated nor rendered obvious by Owens, or Hokoziaki, or Watanabe, either alone or in combination.

Accordingly, the Applicants also respectfully submit that Claims 17 and 26 overcome the rejection under 35 U.S.C. 103(a), and that Claims 21 - 23, which depend from Claim 17, also overcome the rejection under 35 U.S.C. 103(a) through dependency on an allowable base claim.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi, in view of Hokoziaki, as applied to Claim 17, in further view of Juskey et al. U.S. Patent No. 5,336,931 (hereinafter Juskey). Claim 24 depends from independent Claim 17, and lists further limitations to the claimed invention. Applicants have reviewed the cited references, and respectfully submit that the embodiment of the present invention as recited in Claim 24 is neither anticipated nor rendered obvious by Takahashi, or Hokoziaki, or Juskey, either alone or in combination.

The Juskey reference teaches an anchoring method for flow formed integrated circuit covers and an order for a cleaning step, see e.g. col. 1 lines 1 -

5 and col. 5 lines 5 -17 of Juskey. However, Juskey does not overcome the shortcomings of Takahashi and Hokozaki noted above with regard to Claim 17. Nowhere in the Juskey reference is a universal packaging system for back-end manufacturing of ICs taught or suggested that comprises "a front-of-line portion for receiving a die-strip and for processing said die-strip using a first plurality of processes that function independently of the die size of said die strip," as is recited in Claim 17 from which Claim 24 depends.

Even if the purported Juskey modifications of Takahashi that are proposed in the Office Action were made, the embodiment of the Applicants' invention as set forth in Claim 17 would not be produced. Consequently, the embodiments of the Applicants' invention as set forth in Claim 17 (from which Claim 24 depends) are neither anticipated nor rendered obvious by Takahashi, or Hokozaki, or Juskey, either alone or in combination. Accordingly, Applicants submit that Claim 24 overcomes the rejection under U.S.C §103(a) through its dependency on an allowable base claim.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi, in view of Hokozaki, as applied to Claim 17, in further view of Hayashi U.S. Patent No. 5,499,717. Claim 25 depends from independent Claim 17, and lists further limitations to the claimed invention. Applicants have reviewed the cited references, and respectfully submit that Claim 25 is neither

anticipated nor rendered obvious by Takahashi, or Hokozaki, or Hayashi, either alone or in combination.

Hayashi teaches an embossed carrier tape system; see e.g., col. 1 lines 1 - 10 of Hayashi. However Hayashi does not cure the deficiencies of Takahashi and Hokozaki noted above in regard to Claim 17. Hayashi is silent with respect to a universal packaging system for back-end manufacturing of ICs comprising: "a front-of-line portion for receiving a die-strip and for processing said die-strip using a first plurality of processes that function independently of the die size of said die strip," as is recited in Claim 17 from which Claim 25 depends.

Even if the Hayashi modifications of Takahashi that are proposed in the Office Action were made, the embodiment of the Applicants' invention as set forth in Claim 17 would not be produced. Consequently, the embodiment of the Applicants' invention as set forth in Claim 17 (from which Claim 25 depends) is neither anticipated nor rendered obvious by Takahashi, or Hokozaki, or Hayashi, either alone or in combination. Accordingly, Applicants submit that Claim 25 overcomes the rejection under U.S.C §103(a) through its dependency on an allowable base claim.

Claims 18 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owens, in view of Hokozaki and Watanabe as applied to Claims 17 and 26, in further view of Takahashi. Claim 18 depends from independent

Claim 17, and lists further limitations to the claimed invention. Claim 27 depends from independent Claim 26, and lists further limitations to the claimed invention. Independent Claims 17 and 26 list similar limitations and were rejected with the same rationale.

As previously discussed, neither Takahashi, nor the combination of Owens, Hokozaiki, and Watanabe teach or suggest "a front-of-line portion for receiving a die-strip and for processing said die-strip using a first plurality of processes that function independently of the die size of said die strip," as is recited in Claims 17 and 26. Therefore, Claims 17 and 26 are not anticipated or rendered obvious by Owens, Hokozaiki, Watanabe, and Takahashi, either alone or in combination. Consequently, Claim 18 dependent from Claim 17, and Claim 27 dependent from Claim 26, are not anticipated or rendered obvious by Owens, Hokozaiki, Watanabe, and Takahashi, either alone or in combination. Accordingly, Applicants submit that Claims 18 and 27 overcome the rejection under U.S.C §103(a) through their dependency on allowable base claims.

Claims 24 and 28 are rejected under U.S.C §103(a) as being unpatentable over Owens, Hokozaiki, and Watanabe as applied to Claims 17 and 26, further in view of Juskey. Claim 24 depends from Claim 17, and lists further limitations to the claimed invention. Claim 28 depends from Claim 26 and lists further limitations to the Claimed invention. Independent Claims 17 and 26 list similar limitations and were rejected with the same rationale.

As discussed above, Owens, Hokozaiki, and Watanabe fail to teach or suggest “a front-of-line portion for receiving a die-strip and for processing said die-strip using a first plurality of processes that function independently of the die size of said die strip,” as is recited in Claims 17 and 26. Also as discussed above, Juskey fails to cure this deficiency.

Therefore, Claims 17 and 26 are not anticipated or rendered obvious by Owens, Hokozaiki, Watanabe, and Juskey, either alone or in combination. Consequently, Claim 24 dependent from Claim 17, and Claim 28 dependent from Claim 26, are not anticipated or rendered obvious by Owens, Hokozaiki, Watanabe, and Takahashi, either alone or in combination. Accordingly, Applicants submit that Claims 24 and 28 overcome the rejection under U.S.C §103(a) through their dependency on allowable base claims.

Claim 29 is rejected under U.S.C §103(a) as being unpatentable over Owens, Hokozaiki, Watanabe, and Takahashi as applied to Claims 27, and further in view of Hayashi. Claim 29 is dependent from Claim 26 and lists further limitations of the Claimed invention. As discussed above, the combination of Owens, Hokozaiki, Watanabe, and Takahashi fails to teach or suggest “a front-of-line portion for receiving a die-strip and for processing said die-strip using a first plurality of processes that function independently of the die size of said die strip,”

as is recited in Claim 26 from which Claim 29 depends. Also as discussed above, Hayashi fails to cure this deficiency.

Therefore, Claim 26 is not anticipated or rendered obvious by Owens, Hokoziaki, Watanabe, Takahashi, and Hayashi, either alone or in combination. Consequently, Claim 29 dependent from Claim 26 is not anticipated or rendered obvious by Owens, Hokoziaki, Watanabe, Takahashi, and Hayashi either alone or in combination. Accordingly, Applicants submit that Claim 29 overcomes the rejection under U.S.C §103(a) through its dependency on allowable base claims.

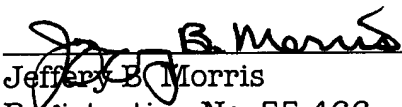
SUMMARY

In view of the foregoing remarks, the Applicants respectfully submit that the pending claims in the instant patent application are in condition for allowance. The Applicants respectfully request reconsideration of the Application and allowance of the pending claims.

If the Examiner determines the prompt allowance of these claims could be facilitated by a telephone conference, the Examiner is invited to contact Applicants' designated representative at the below listed phone number.

Respectfully submitted,
WAGNER, MURABITO & HAO LLP

Dated: 18 July, 2005


Jeffrey B. Morris
Registration No. 55,466

Address: WAGNER, MURABITO & HAO LLP
Two North Market Street
Third Floor
San Jose, California 95113
Telephone: (408) 938-9060 Voice
(408) 938-9069 Facsimile